

Recommendation 12-2

**USE OF THE 14.0 - 15.35 GHz AND 16.6 - 17.1 GHz BANDS  
FOR SPACE RESEARCH, CATEGORY A<sup>1</sup>**

The SFCG,

CONSIDERING

- a) that some SFCG member agencies are actively pursuing plans for space research missions which require very large bandwidths, e.g. spaceborne VLBI, geodesy and geodynamics;
- b) that bandwidth requirements in excess of 10 MHz are increasingly difficult to satisfy in the frequency bands allocated to space research below 10 GHz;
- c) that the 8450 - 8500 MHz region has been identified as appropriate for Category A missions requiring less than 10 MHz bandwidth, as specified in SFCG Recommendation 5-1R4;
- d) that the 14 - 15.35 GHz band is densely occupied by the fixed service (14.3 - 15.35 GHz) and Earth-to-space links of the fixed-satellite service (14 - 14.8 GHz) and that, consequently, assignment of Earth-to-space links of the space research service is difficult;
- e) that the 16.6 - 17.1 GHz band is allocated to radiolocation, primary and to space research, (deep space) (Earth-to-space), secondary;
- f) that there are currently no plans by SFCG member agencies to use the 16.6 - 17.1 GHz band for space research, (deep space) (Earth-to-space), and that consequently, at a future competent World Radio Communications Conference, the limitation to deep-space should be suppressed;
- g) that the sharing situation in the 14.0 - 15.35 GHz and 16.6 - 17.1 GHz bands, where the space research service has only a secondary status is difficult and does not lend itself to the use of classical modulation schemes which exhibit a high interference potential and a high susceptibility to interference;
- h) that spectrum spreading types of modulation can considerably alleviate the sharing problems addressed above;
- i) that SFCG members should ensure compatibility between their operations in the 14.0 - 15.35 and 16.6 - 17.1 GHz bands;

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<sup>1</sup> Category A missions are those having an altitude above the Earth of less than  $2 \times 10^6$  km

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- j) that certain parts of the 14.0 - 15.35 GHz band have existing and planned assignments to data relay satellites (Earth-space, space-space);

#### RECOMMENDS

1. that the 14.0 - 15.35 GHz band be used for space-to-Earth transmissions of space research Category A missions;<sup>2</sup>
2. that the 16.6 - 17.1 GHz band be used for Earth-to-space transmissions of space research Category A missions;<sup>3</sup>
3. that the spectrum of data transmissions in the bands shall be sufficiently spread so as to ensure adequate protection for services operating in the band;
4. that existing and planned frequency assignments to data relay satellites (Earth-space, space-space) be protected.

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<sup>2</sup> The 14.3 - 14.4 GHz and 14.47 - 14.5 GHz bands are not allocated to space research and will consequently have to be used in accordance with the provisions of RR 342.

<sup>3</sup> See Considering e) and f).